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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/186,817	11/05/1998	MARK RAPAICH	450.183US1	2299

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EXAMINER	
LAO, LUN S	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/186,817	RAPAICH, MARK	
	Examiner	Art Unit	
	Lun-See Lao	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action is in response to the amendment filed 12-19-2005. Claims 1,2, 9 and 11-13 have been amended and claim 17 has been added. Claims 1-17 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-19-2005 has been entered.

3. For the discussion of the allowance, the examiner considers to remain the rejection from the claim 1-17.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Cooper (US PAT. 5,592,508).

Regarding claim 11, Cooper teaches that a method of routing digital audio to a plurality of audio digital-to-analog converters in a personal computer comprising the steps of:

receiving digital audio from one of the plurality of digital audio sources (see fig.4 (after a/d, 13-1-13-n)); input signals could have different priority (see col. 5 line 13-40). Thus, it would have been inherent that the audio signals were assigned with priority before being routed to the converters; and

routing (16) the digital audio data to one of a plurality of converters (10-1-10-n) in an order determined by the assigned data priority (see fig.4 col.4 line 50-col.5 line 55).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 5-6, 8-9 and 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) in view of Thagard et al. (US PAT. 6,215,737).

Regarding claim 1, Cooper teaches that a system comprising:

a plurality of audio digital-to-analog converters (see fig.4, (10-1-10-n)),

A controller (see fig.4, 17) configured to receive digital audio signals from multiple sources and route (see fig.4, 16) the digital audio signals to a selected digital-to-analog converter (10-1,10-n) based on desired converter (route to a converter matching the appropriate/particular signal, col.4 line 55-col.5 line 55), but Cooper does not clearly teach the audio signals from multiple sources are routed to selected DAC base on a desired quality digital to analog converters and a plurality of audio digital-to-analog converters configured as part of the personal computer.

However, (office notice is taken) it is well known in the art that a the plurality of audio digital-to-analog converters can be configured as part of the personal computer system.

Therefore, it would have been obvious that the plurality of audio digital-to-analog converters of the system of Cooper could have been configured as part of the personal computer as claimed base on the designer's preference and needs to make the system more compact.

On the other hand, Thagard teaches that multi-channel distal the audio signals can be recorded using different sampling rates and played back using different sampling rate converter selectively; signals with different sampling rates can be consider as signals with different quality; ~~select~~ different sampling rates (such as 12khz (subw) 48 khz (r.l, rr) and 96khz(fc, fr) relate to different quality digital to analog converter (such as

subw d/a, rl d/a, rr d/a, fl d/a, fc d/a and fr d/a see figs 3-4 and col.3 line 34-col.4 line 34).

Therefore, it would been have obvious to use the teaching of Thagard in the system of Cooper so that audio signals that were recorded in different sampling rates could have been properly routed to (e.g. by switches) appropriate converter with proper sampling rate during play back.

Regarding claims 2, 13, Cooper teaches a system comprising:

one or more standard digital audio sources (see fig.4, (13-1-13-n));

means for routing (16) digital audio signals from standard digital audio sources to a standard quality digital-to-analog converter (see fig.4, (10-1-10-n); when the audio signal are low quality signals the DAC which is used to convert these low quality signals can be consider as low quality DAC and

means for routing (16) digital audio signals from a high-quality digital audio source to a high quality digital-to-analog converter (see fig.4, (10-1-10-n and see col.4 line 50 - col.5 line 55) when the audio signal are high quality signals the DAC which is used to convert these high quality signals can be consider as high quality DAC). Note the discussion of claim 1 with regard to the limitation which receives a plurality of audio digital-to-analog converters being configured as part of the personal computer, the system of Cooper as modified meets the claimed limitation.

Regarding claim 3, Cooper discloses that the system includes any of the high quality or standard quality digital-to-analog converters are coder-decoders (CODECs)

that contain both digital-to-analog converters (see fig.4, (10-1-10-n)) and analog-to-digital converters (see fig.4, (13-1-13-n) and col.4 line 50- col.5 line 50).

Regarding claims 5-6, Cooper teaches that a user configures the controller by hardware or software controls, such that the controller routes a selected analog signal to a selected one of a plurality of analog outputs (see fig.4 and col.4 line 5- col.5 line 15), and that the selected analog signal is provided by one of a group consisting of the digital-to-analog converters, Compact Disc players, DVD players, microphones, TV tuners, or analog inputs (see col.3 lines 20-42).

Regarding claim 8, Cooper teaches that the digital audio signal (see fig.4, (10-1-10-n)) is transferred from the digital audio source (13-1-13-n) to the controller (17) by a direct electrical or optical connection between the two.

Regarding claim 9, Cooper teaches that a method of routing digital audio to a plurality of digital-to-analog converters in a personal computer comprising the steps of:

receiving digital audio data from one of a plurality of digital audio sources (after a/d, (13-1-13-n)); and

routing (see fig.4, 16) the digital audio data to one of the plurality (see fig4. 10-1-10-n)) of converters based on desired converter quality (audio signals were routed to a converter which matches the appropriate/particular signal, col.4 line 55-col.5 line 55 and see col. 5 line 13-40). Note discussion of claim 1 for based on desired converter quality.

Consider claim 17, Cooper does not teach that the standard quality digital-to-analog converter is configured as part of the personal computer system; and

wherein the high quality digital-to-analog converter configured as part of the personal computer system.

However, (office notice is taken) it is well known in the art that a the plurality of audio digital-to-analog converters can be configured as part of the personal computer system.

Therefore, it would have been obvious that the plurality of audio digital-to-analog converters of the system of Cooper could have been configured as part of the personal computer as claimed base on the designer's preference and needs to make the system to more compact.

On the other hand, Thagard teaches that multi-channel distal the audio signals can be recorded using different sampling rates and played back using different sampling rate converter selectively; signals with different sampling rate can be consider as signals with different quality; different sampling rates (such as 12khz (subw) 48 khz (r.l, rr) and 96khz(fc, fr) relate to different quality digital to analog converter (such as subw d/a, rl d/a, rr d/a, fl d/a, fc d/a and fr d/a see figs 3-4 and col.3 line 34-col.4 line 34).

Therefore, it would been have obvious to use the teaching of Thagard in the system of Cooper so that audio signals that were recorded in different sampling rates could have been properly routed to (e.g. by switches) appropriate converter with proper sampling rate during play back.

7. Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT. 5,592,508) in view of Heyl (US PAT 5,774,567) and Thagard (US PAT 6,215,737).

Regarding claim12, Cooper teaches that controller (see fig.4, 17) configured to receive digital audio signals from multiple sources and route (see fig.4, 16) the digital audio signals to a selected digital-to-analog converter (10-1,10-n) based on desired converter (route to a converter matching the appropriate/particular signal, col.4 line 55-col.5 line 55); but Cooper does not clearly teach a personal computer system comprising: memory, a processor; a bus; a plurality of digital audio converters; and wherein at least some of said plurality of digital audio converters are configured as part of said personal computer system and the audio signals from multiple sources are routed to selected DAC base on a desired quality digital to analog converters.

However, Heyl teaches that a personal computer system comprising: memory (see fig.5, 202 buffer); a processor (such as a control circuitry); a bus (see fig.5 and col.6 line 8-col.7 line 19), a plurality of digital audio converters (see fig.5 214,215, 252, 254); wherein at least some of said plurality of digital audio converters are configured as part of said personal computer system (see fig.5 (262) and col.6 line 8-col.7 line 17).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Heyl into the teaching of Cooper to provide the designer's preference and needs for the purpose of acquiring the desired audio sound quality for the acoustical environment.

On the other hand, Thagard teaches that multi-channel distal the audio signals can be recorded using different sampling rates and played back using different sampling rate converter selectively; (such as 12khz (subw) 48 khz (r.l, rr) and 96khz(fc, fr) relate to different quality digital to analog converter (such as subw d/a, rl d/a, rr d/a, fl d/a, fc d/a and fr d/a see figs 3-4 by difference frequency and col.3 line 34-col.4 line 34 and selected digital to analog converter base on desired converter quality, i.e, desired sampling rate converter and treat the signals as higher quality (such as 48khz for rl, rr d/a converter) than low quality audio signals (such as 12khz for subw d/a converter). The same is true for corresponding difference quality digital to analog converters).

Therefore, it would been have obvious to using the teaching of Thagard in the system of Cooper so that audio signals that were recorded in different sampling rates could have been properly routed to appropriate converter with proper sampling rate during play back and to combine the teaching of Thagard into Cooper to provide a multi-channel digital audio having different sampling rate for different d/a converter in order to avoid more data than is necessary and consequently to conserve space on the software carrier to enhance audio reproduction quality.

Regarding claim 16, Heyl teaches that a computer speaker (see fig.5, SPKR-OUT) configured to receive analog signals converted from the digital audio signals by the selected digital-to-analog converter (such as left D/A and right D/A and see col.8 line1-col. 9 line 12).

8. Claims 4,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) as modified by Thagard (US PAT. 6,215,737) as applied to claims 1, 9 above and further in view of Van Ryzin (US PAT 6,052,471).

Regarding claims 4, 10, Cooper teaches that receiving digital audio from one of the plurality of digital audio sources (see fig.4 (after a/d, 13-1-13-n)); input signals could have different priority (see col. 5 line 13-40). Thus, it would have been inherent that the audio signals were assigned with priority before being routed to the converters (see col.4 line 50-col.5 line 55). Cooper fails to teach that determining which digital audio data has the highest priority among all data assigned to each converter; and converting the digital audio data in each converter with the highest priority to analog audio.

However, Van Ryzin teaches that determining which digital audio data has the highest priority among all data assigned to each converter; and converting the digital audio data in each converter with the highest priority to analog audio (see col.3 line 60-col.4 line 65).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Van Ryzin into the teaching of Cooper and Thagard to achieve a system receiving inputs signals from multiple sources to be able to readily switch to an appropriate source of the multiple sources while requiring a minimum amount of user intervention.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) as modified by Thagard (US PAT. 6,215,737) as applied to claims 1, 9 above and further in view of Heyl (US PAT 5,774,567).

Regarding claim 7, Cooper and Thagard does not teach a standard personal computer bus for transferring the digital audio signal from the digital audio source to the controller.

However, Heyl teaches a standard personal computer bus for transferring the digital audio signal from the digital audio source to the controller (see fig.5 and col.1 lines 17-35, col.6 lines 8-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Heyl into the teaching of Cooper and Thagard to provide to handle complex control and routing of numerous sound inputs in a cost effective manner.

10. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) as modified by Thagard (US PAT. 6,215,737) as applied to claim 1 above and further in view of Fairchild (US PAT 5,153,592).

Regarding claim 14, Cooper and Thagard do not clearly teach that each of the plurality of audio digital-to-analog converters has an indication of quality.

However, Fairchild teaches that each of the plurality of audio digital-to-analog converters has an indication of quality (see fig.1, 32,36,38 and col.3 line 14-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Faichild into the teaching of Cooper and Thagard to provide total dynamic performance accuracy and reliability in the digital-to-analog converters.

Regarding claim 15, Cooper and Thagard do not clearly teach that an indication of quality to each of the plurality of digital-to-analog converters; wherein the routing of the digital audio data is based on said to one of the plurality of converters being a closest match to the desired converter quality.

However, Fairchild teaches that an indication of quality to each of the plurality of digital-to-analog converters (see fig.1, 32,36,38 and col.3 line 14-57); wherein the routing (22) of the digital audio data is based on said to one of the plurality of converters being a closest match to the desired converter quality (see col.1 line 59-col.2 line 59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Faichild into the teaching of Cooper and Thagard to provide total dynamic performance accuracy and reliability in the digital-to-analog converters.

Response to Arguments

11. Applicant's arguments filed with regard to the newly added claims 14-16 on 06-30-2005 have been considered but are moot in view of the new grounds of rejection.

12. The prior art made of record and not relied upon is considered to applicant's disclosure. Adams (US PAT 5,977,899) discloses an apparatus to configure the standard quality and high quality (see figs. 2-3) to show other related the multiple audio DACs with pc compatibility.

Conclusion

13. Any response to this action should be mailed to:

Mail Stop ____(explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:
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Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501 The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Knox

571-272-7501

Date 03-20-2006

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

3/20/06